THE DELAWARE AND HUDSON RAILROAD BULLETIN

DECEMBER 1, 1937

In December

IN December, when the people
    Turn their thoughts from get to give.
Then they seem to come the closest
To the lives they ought to live.
Then the greeting, "Merry Christmas,"
    Oft-repeated, spreads its cheer,
And the sparks of friendship brighten
    Toward the ending of the year.

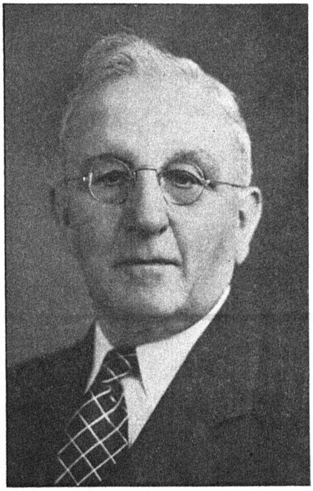
Have you noticed, too, that Nature
    Hides her barren fields from sight,
Screens the leafless trees with silent
    Falling, fluffy flakes of white?
Yet the evergreens bear token
    Of the plan she has in view:
When the New Year dawns with promise,
    She—like man—will start anew.

—ANONYMOUS.

The
DELAWARE AND HUDSON RAILROAD
CORPORATION
BULLETIN

Telephones Used in 1884

Trains Were Dispatched by Telephone 53 Years Ago, Says Veteran



MOREY J. HALL

TELEPHONE train dispatching systems are a relatively recent innovation on American railroads, the first modern installation of this type on The Delaware and Hudson having been placed in service on the Susquehanna Division between Oneonta and Mechanicville in 1918. With this equipment the dispatcher can call any train order station or tower by simply turning the proper lever on a panel before him, the machine automatically ringing the point called. Agents, telegraphers, and towermen call the dispatcher by picking up the receiver and speaking the names of their stations, in this respect following the practice of the old-fashioned "party lines" once so common in rural districts of this country.

Yet train orders were handled by telephone on the Cooperstown and Susquehanna Valley Railroad, later the Cooperstown and Charlotte Valley Railroad and now part of The Delaware and Hudson, as early as 1884, according to retired Crew Dispatcher Morey J. Hall, who was appointed agent at Portlandville, four miles northwest of Cooperstown Junction, in that year. As a matter of fact, all types of messages—train orders, telegrams, and matters which today would probably be covered by correspondence—were all handled over the Cooperstown and Susquehanna Valley's 16-mile-long telephone wire. Ability to telegraph was therefore not a requirement of station agents on the C. & S. V. R. R. In fact, telegraph lines were not strung on this road until it was absorbed by The Delaware and Hudson in 1903.

Mr. Hall knew nothing of telegraphy prior to his appointment as agent, having been hired as a section hand in his father's track gang at Portlandville, at the age of 18, in the spring of 1884. One morning a few months later E. M. Harris, president of the road, stepped from one of the two daily combination passenger-express-freight trains at the village and, when the diamond-stacked locomotive had chugged on toward Cooperstown Junction, strode down the track to the point where the section gang was at work. After a short conversation with Foreman Thomas Hall, Mr. Harris singled out young Morey, who had been recommended by General Passenger Agent R. W. Roundy, to ask him if he would like to be the company's agent at Portlandville. Although somewhat taken aback by President Harris' abrupt offer, Morey accepted and took up his new duties at once.

Despite his youth, MOREY was familiar with the railroad and its operation, having been born on Crumhorn Mountain, in the town of Milford, August 22, 1866, and raised in the Susquehanna River Valley. From 1873 until the time of his death in 1885, MOREY'S father had been section foreman, and railroading was the most popular topic of conversation in the Hall home.

MR. HALL well recalls the day in 1876 when the 6-foot gauge tracks were standardized. Although only ten years old at the time, he remembers that spikes were driven in the ties beforehand to indicate the correct rail spacing, so that on the day of the change-over one rail simply had to be loosened and slid over against the marking spikes. All the section men regularly employed on the entire line, as well as laborers hired for the day, set to work at daybreak and at night the entire 16-miles had been narrowed to standard gauge.

When MR. HALL was agent at Portlandville, train orders, received by telephone from Cooperstown, were scribbled off on any piece of paper that might be handy as there were no train order forms. The order was copied into a large book and the original was handed to the conductor. Engineers did not receive a copy as they do now; they took their orders from the conductor.

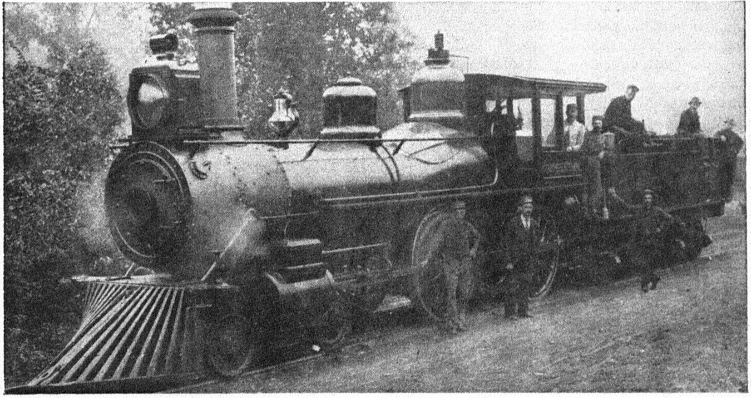
Another recollection which is of particular interest in view of last year's passenger fare reduction from 3½ to 2 cents a mile, is the fact that on the C. & S. V. R. R. passengers paid at the rate of five cents a mile. Most of the tickets sold at Portlandville were for Cooperstown Junction, the fare for the four-mile one-way trip being 20 cents.

When the company was reorganized as the Cooperstown and Charlotte Valley Railroad and the line extended to Davenport Center, MOREY left railroading to go to work on the estate of Congressman David Wilber, father of George I. Wilber, who was later to become a prominent stockholder in The Delaware and Hudson, the owner of a bank in Oneonta, and a leader in that city's development.

A two-year absence having served to convince MOREY that he preferred railroading to any other pursuit, he returned to it in January, 1887, this time as a fireman on The Delaware and Hudson, thus beginning his exactly 50 years' service with the company. Hired by Master Mechanic Thomas Howard, MOREY made three round trips between Oneonta and Quaker Street (now Delanson) with Engineer Delos Whitney and Fireman Menzo Ostrander to learn the road and the fireman's duties before starting to fire out of Oneonta.

(Continued on page 182)

C. & C. V. Locomotive No. 3, "The Cooperstown"



This picture, taken at Davenport Center in 1893, was loaned to *The Bulletin* by retired ENGINEER FRED E. BEACH. On the ground are: Trainman Luman Myers, Conductor Cook Every, Agent James Pindar; above (at window) Fireman George Francisco, MR. BEACH, and Trainman Edward Every; other two unknown.

Is There Any Justification for the Passage of

The Train Limit Bill?

AT the last session of Congress the Senate, without public hearing, passed a bill (Senate 69) to limit the length of freight trains to seventy cars. The bill is now before the Interstate and Foreign Commerce Committee of the House.

The public generally and Members of Congress have been informed that the purpose of this bill is to safeguard the lives and limbs of railroad employes; that by curtailing the length of trains the hazard to the men in the caboose would be reduced and casualties arising from an emergency application of air brakes avoided.

This is not correct. In 1936 not a single fatality occurred in the operation of a long train caused by an accident of the class which this bill seeks to avoid. There were, however, three fatalities on trains of 18 or less cars.

The type of accident which this bill seeks to control is one which the Interstate Commerce Commission designates as due to "sudden stop, start, lurch or jerk of train." The records of the Commission show that in 1936, on all trains, both long and short, there were but three fatalities in the whole country falling within this category. The same was true in the three preceding years. In 1936 the three fatalities so classified occurred:

1. Train of 11 cars. Freight brakeman killed due to derailment.
2. Train of 18 cars. Freight brakeman killed by derailment on curve.
3. Train of 9 cars. Freight conductor killed by falling from caboose.

There is no evidence to justify the contention that this bill, if enacted into law, will promote safety. On the contrary, there is abundant evidence that it will greatly increase the hazard of accidents to the general public and railroad employes.

The length and speed of trains have increased year by year to meet the demands of the public and keep pace with the nation's progress. Observe the result from a safety standpoint. Reports of the years 1923 to 1936, inclusive, show that of all the fatalities and injuries to train service employes 61 per cent occurred on trains of fewer than seventy cars.

Accidents resulting in casualties to employes occur on long trains, on short trains, in yard operation, and elsewhere, and all are included in the records of the Commission. However, in the consideration of this bill accidents related to the length of trains should not be confused with the record of all accidents in train service.

Of all the thousands employed in railroad operation only the freight conductors and freight brakemen, who ride in the cabooses, can be said to be affected by this bill. They represent only 5 per cent of the total number of men employed on the railroads.

Injuries as a result of the slacking, jerking and sudden stopping and starting of trains due to braking have decreased 61 per cent in the period 1923 to 1936, inclusive.

The requirements of this bill would make necessary the operation of many thousands of additional trains; to handle the volume of traffic transported in 1930, a normal year, would mean 87,000,000 more train miles.

The deplorable record of deaths and injuries from motor vehicle accidents on the highways is all too well known. Upon highway grade crossings of the railroads, 1442 lost their lives and 4434 were injured in 1935 due to motor cars being struck by or running into trains. For each million train miles run there were approximately 1.75 fatalities and 5 non-fatal injuries. Applying this ratio to the 87,000,000 additional train miles required by this bill would indicate an increase of 150 in the death toll with an increase of 450 in the non-fatal injuries.

More trains mean more accidents in railroad yards and on the railroad because the number of meets multiplies rapidly when additional trains are run. Two trains in each direction over a given track in a given period involve four train meets (and mark this, three trains in each direction involve nine train meets). The possibility of accident is too obvious to need comment.

The increased number of trains which this bill would require, with corresponding increase in the hazard of collision between trains, would affect the safety of passengers and train service employes alike.

It would affect the safety of thousands of farmers using private crossings of the railroads to move stock from one part of the farm to another.

It would also constitute a much greater danger to the safety of the thousands of workers engaged in the maintenance of the tracks.

When legislation similar to this ill-advised bill was advanced in Arizona and Nevada the courts there said:

Arizona:

> "We are convinced from the evidence that the law bears no reasonable relation to safety of persons and property."

Nevada:

> "The frequence of trains and train-service accidents is directly related to the number of train units operated and when more train units are run than are necessary to handle a given amount of traffic the hazard of accidents in handling such traffic is correspondingly increased."

The late Louis Wiley, Business Manager of the New York Times, said:

> "The railways have accepted public safety as a public trust. They have made safety the first tradition of the railroads and have spared no expense to guarantee that, so far as human brains can foresee, all precautions against accidents have been taken. * * *
>
> "No form of travel is equally as safe."

The plain truth is that this bill, if made law, will increase deaths and injuries throughout the nation. For the sake of humanity its defeat must be made certain.

Telephones Used in 1884

(Continued from page 180)

Eight years later, in 1895, MR. HALL was promoted to the rank of engineer by Engine Dispatcher C. O. Beach. In 1904, MR. HALL'S brother, Earl, who had been Transportation Department timekeeper at Oneonta for several years—another brother, Sperry W., was employed in the Mechanical Department—decided to seek employment elsewhere. Superintendent F. B. Lincoln appointed MOREY to this position and for four years MOREY kept the records of the time worked by all engineers and firemen on the Susquehanna Division.

On December 16, 1908, Superintendent D. F. Wait appointed MR. HALL engine dispatcher at Oneonta, a position he held for the succeeding 21 years. In this capacity it was his duty to provide the engine crews for all trains originating at Oneonta. In May, 1929, the positions of engine dispatcher and crew dispatcher were combined under the title of crew dispatcher, and thereafter MR. HALL "marked" both engine and train crews, continuing in this position until he retired on pension January 1, 1937.

Years ago MR. HALL began compiling a list of every engineer who ever ran a locomotive on what is now the Susquehanna Division, going back to the first train operated on the line when it was still the Albany and Susquehanna Railroad. Pay rolls, time books, and other musty old documents all yielded their bits of information until finally he had the name, date of promotion or hiring as engineer, date and reason for leaving the service, for each man. Oddly enough his engineers' roster proved invaluable to the company later on when many of the division records were destroyed by a fire in the Wilber Block, Oneonta. The personnel dates of many engine service men would have been subject to doubt had it not been for the roster he had worked so faithfully to compile.

Shortly after his marriage, early in 1888, to Clara B. Rowland—who was to be his wife for 45 years—MR. HALL left Oneonta for Delanson as "PETE" LA GRANGE'S fireman on "The 267." The much-storied "Blizzard of '88" snowed them in at Delanson for two days, after which five engines, headed by "The 267" with Messrs. LA GRANGE and HALL aboard, were dispatched north to rescue "Duffer" O'Dell's train which was snowbound north of Knox. Despite the combined power of the five locomotives, they were forced to stop, back up, and plunge ahead into the drifts time and again until they were finally stalled on the downgrade north of Knox Siding. The snow drifted in behind them so quickly that they could not return to Delanson and they were snowbound for several days, meanwhile keeping their fires alive by shoveling snow into the tanks and living on short rations supplied by a farmer living nearby. It was exactly one week from the time they left Oneonta on that trip until they returned home.

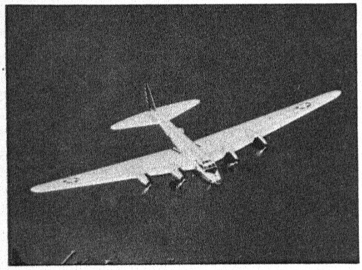
MR. HALL has three living children: Robert, with whom he resides on the South Side Road, just outside of Oneonta; Mrs. H. B. Weller, of Geneva, N. Y.; and THOMAS W., a telegrapher and towerman at Albany, who represents the third generation of the Hall family in the service of lines now operated by The Delaware and Hudson. MR. HALL is a member of The Delaware and Hudson Veterans' Association, the Masons, and the Brotherhood of Locomotive Firemen and Enginemen.

QUIZ

Fable thus accounts for this word, which was not found prior to 1780: Mr. Daly, manager of a Dublin theater, laid a wager that he could introduce a new word, with no meaning, into the language within 24 hours. Accordingly, on every wall these four mystic letters were chalked up, and overnight all Dublin was inquiring what they meant. The wager was won, and the word remains current in the language.

Magnetos Made in Sidney

Are Standard Engine Equipment Wherever American Airplanes Fly



Courtesy United Aircraft Corp.

Army's Largest Bomber, Powered by Four 1,000-Horsepower Engines, is 90 Feet Long, Has 150-foot Wing Span, Weighs 30 Tons.

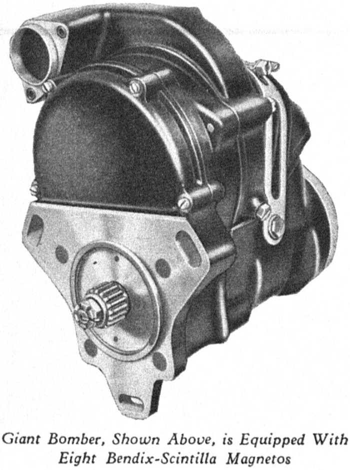
MOST of the airplanes that fly America's skyways as commercial carriers of passengers, mail or express, as well as in the various government services, have as standard equipment on each engine *two* magnetos made in the plant of the Scintilla Magneto Company, at Sidney, N. Y., adjacent to the Susquehanna Division main line tracks. In fact, most airplane motors of 100 horsepower or more are equipped with Bendix-Scintilla magnetos. Many of the smaller ships carry Bendix-Scintilla battery ignition sets. This company is a subsidiary of Bendix Aviation Corporation, makers of a wide variety of equipment for aircraft and automotive use.

Bendix-Scintilla magnetos are also used abroad wherever American-made aircraft engines fly, a notable example being on Royal Dutch Air Lines planes flying the 8,921 miles between Amsterdam, Holland, and Batavia, in the Dutch East Indies, via Naples, Italy, the longest air route in the Old World. Nearer home, the Pan-American flying clippers rely on these magnetos on all their routes: from North to South America, and across the Atlantic and Pacific Oceans, the last named being the longest air route in the world. Of all trans-Atlantic flights by American planes, beginning with Col. Lindbergh's famous solo hop, may be written "ignition by Scintilla."

These statements naturally prompt the query, what is a magneto and what is its purpose. The modern magneto is a miniature electric generator, producing high voltage alternating current for ignition purposes, together with means for distributing this current to the spark plugs. In aircraft service size and weight of every part must be kept at a minimum; therefore, magnetos are made only large enough to generate sufficient current to take care of ignition needs. They produce no additional current for other purposes such as lighting, radio, or accessories.

In its simplest form, the magneto consists of a two- or four-pole magnet which rotates in such a manner that magnetic flux passes from the magnet through the core of the coil winding. As the magnet rotates, these lines of force or flux change rapidly in strength and direction, thus inducing current in the primary winding, first in one direction, then in the other. This primary current produces a flux of its own which opposes the flux which produced it.

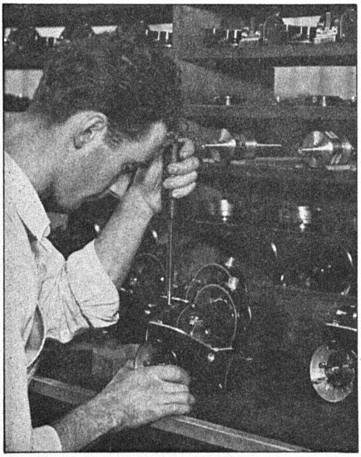
When the magnet reaches the position at which the greatest change of flux occurs, the breaker contacts open, interrupting the primary circuit and removing the opposing field. This causes a large



Giant Bomber, Shown Above, is Equipped With Eight Bendix-Scintilla Magnetos and rapid change in flux in the core which in turn induces a high voltage current in the secondary winding of the coil. This current—a fraction of an ampere at from 6,000 to 10,000 volts—is conducted to a built-in distributor which directs it to the spark plugs at the correct firing interval of the engine.

Magnetos are produced in a wide variety of shapes, each designed for a particular type of aircraft, automotive, stationary, or industrial gasoline engine. In view of the fact that the magneto combines the ignition functions of the generator, battery, induction coil, distributor and all the intermediate wiring, it is amazingly compact, the magneto for a 9-cylinder airplane engine measuring only 8¼ inches long, 5¾ inches wide, and 8 inches high, and weighs only 15 pounds.

Magnetos hold several decided advantages over the generator-battery-coil-distributor hook-up as exemplified by the ignition systems on most present day automobiles. The first, of course, is the very fact that this one mechanism replaces these four separate parts and all intermediate wiring, greatly reducing the weight of the power plant. Secondly, the engine is thus made independent of a battery which might become discharged, causing an engine failure. Third, the voltage generated by a magneto increases with the speed with which it is driven up to its maximum output.



Assembling Magnetos

Furthermore, all airplane motors are removed and serviced at regular intervals—one air line overhauls them after each 300 hours in the air. The fact that the magneto is an integral part of the motor greatly simplifies servicing; the engine can be removed, overhauled, then set up and operated for test purposes independently of the plane, in direct contrast to the inconvenience involved in connecting a battery and coil to a motor provided with battery ignition.

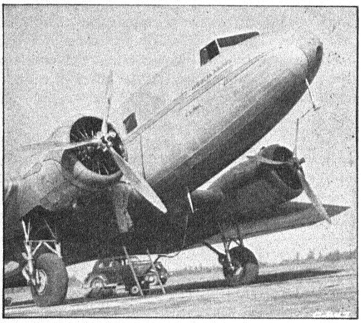
In many ways the history of Scintilla's products reads like fiction. First made in Switzerland during the World War for use on aircraft engines, these magnetos were introduced into the United States shortly afterward, the Scintilla Magneto Company, Inc., being incorporated in New York, in 1921, to act as sales agent for them. Their superiority was so marked that they soon lead the field both in American and Europe.

Gauging Thickness of Mica

At about this time the ownership of the company, including license to manufacture magnetos in this country under Swiss patents, passed into American hands. In February, 1925, manufacturing operations were begun in the plant at Sidney formerly occupied by the Cortland Cart and Carriage Company, makers of Hatfield automobiles. Numerous plant additions have since been made until all manufacturing departments are now housed in modern factory buildings, equipped with the finest of machine tools, the original structures now serving only as offices.

In 1929, the company became one of a group merged to form Bendix Aviation Corporation. While the original magneto designs were of Swiss origin, the present line of Bendix-Scintilla magnetos are 100 per cent American in design, built to meet specific requirements of American engine manufacturers.

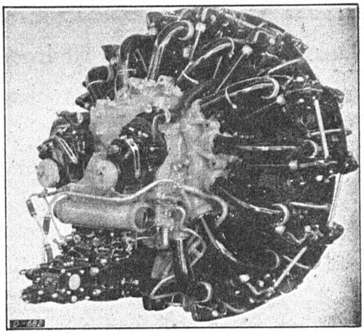
The superiority of the Bendix-Scintilla magneto has gained for it a unique position in the airplane ignition field. Every airplane must be licensed by the Bureau of Aeronautics of the United States Department of Commerce, the procurement of a license involving approval of the engine by the Bureau of Standards. Before a manufacturer can market a given type of engine, he must submit one for exhaustive tests. If approved, the company may make and sell engines of the type tested, although even the slightest change in construction voids the license. Most of the approved gasoline powered airplane engines manufactured in the United States today are equipped with two Bendix-Scintilla magnetos, dual ignition being a condition of approval.



Bendix-Scintilla Equipped Airliner

Aircraft magnetos are by no means the only product of the Sidney plant. A complete line of automotive and industrial ignition units, known as Bendix magnetos, is also produced at Sidney for manufacturers of motor trucks, tractors, stationary, portable, and marine engines. As a matter of interest it may be stated that Linn tractors, made at Morris, N. Y., a description of which was contained in *The Bulletin* of April 1, 1929, are Scintilla equipped.

Another Scintilla product is the Vertex magneto, supplied for mounting on automobiles in place of a battery ignition timer. Incidentally, there are more magnetos in service today on engines of all descriptions than there were in the pre-war period when all automobiles were so equipped.



Magnetos on 14-Cylinder Aircraft Engine

As has already been pointed out in the case of airplane engines, automotive magneto ignition is completely independent of the battery, an important advantage in view of the increasing loads now being placed on automobile batteries by radios, heaters, extra horns, cigarette lighters, fog and spot lights, all of which have a tendency to drain the battery. There is the further consideration that in starting an automobile, particularly in winter, there is so little current left for the ignition system when the starter is in use that starting is made doubly difficult. In magneto-equipped cars all the battery's power is available for starting only, ample current for ignition being supplied by the magneto the instant the motor starts to turn.

Magnetos are now available for installation on practically all makes and types of cars. Sales and service stations are maintained in principal cities throughout the world where magneto ignition can be substituted for the battery system by Scintilla trained and approved mechanics. Delaware and Hudson readers may be surprised to learn that such stations are maintained in the following cities on our lines: Wilkes-Barre, Scranton, Sidney, Albany, Troy, and Montreal.

Specialized design of Bendix-Scintilla products has necessarily resulted in specialized methods of manufacture. The method of assembling aircraft magnetos, for example, is directly opposite to the modern trend toward conveyor line assembly. Parts are placed in compartments on shelves in front of skilled assembly mechanics who build up magnetos

Continued on page 188)

The

Delaware and Hudson Railroad
CORPORATION
BULLETIN

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PUBLISHED MONTHLY by The Delaware and Hudson Railroad Corporation, for the information of the men who operate the railroad, in the belief that mutual understanding of the problems we all have to meet will help us to solve them for our mutual welfare.

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Vol. 17 December 1, 1937 No. 12

Remember that what you possess in this world will be found at the day of your death to belong to someone else; what you are will be yours forever.

—VAN DYKE.

Impressions

TWO truck drivers recently stopped their huge vehicles on a main highway to talk to each other and, despite the fact that long lines of passenger cars soon piled up behind them, they would not proceed or pull over to the side of the road until they had finished their conversation. When his truck finally did get under way again, one of the men scowled at the operator of each of the standing cars as if to ask, "What are you going to do about it?"

Apparently he did not realize that the name of his firm's product was conspicuously lettered across both sides and the rear of his truck, and that he was creating more ill will for his company in those few minutes than all the good salesmanship and advertising in the world could overcome.

Every employe, regardless of his duties, is a personal representative of his organization to all those with whom he comes in contact, whether in business, society, or everyday relations with others. Good impressions made by employes on prospective patrons will just as surely help to bring traffic to the railroad as unfavorable impressions will tend to drive it to our competitors. The personal contacts you are making today will have a vital effect on the future success of The Delaware and Hudson and the railroads of the country as a whole.

Thrift of Materials

THE foreman of one our Car Shops, who had learned his trade under a thrifty English carpenter and wheelwright, used to walk around his men's benches at quitting time every day, picking up odd pieces of lumber which might otherwise have found their way to the scrap bin. Versed as he was in the hundreds of uses to which small pieces of wood could be put, he insisted that his men make use of them.

For his own personal information this foreman kept an account of the value of items made with this lumber which might have been discarded and learned, much to his own amazement, that it ran into the hundreds of dollars over a period of a year. Furthermore, the thrifty use of material which he thus fostered among his men doubtless produced a much larger saving which he had no way of computing.

All of us use materials of some kind in our daily work, the cost of which will vary, of course, with the line of work in which we are engaged. It is well to bear in mind, however, that the saving of as little as two sheets of bond paper a day will mean approximately $1.50 saved per year. The possibilities of thrift among those who handle more expensive materials are proportionately larger. All this leads up to the fact that money spent for materials wasted can never be paid out in wages.

Blossoms and Thorns

THE trouble with a lot of us is that we want to accomplish many things, but aren't willing to pay the price. If life were a game in which the rewards were handed out on a silver platter to anyone who happened to ask for them, lots of folks would sleep in rose beds. But, unfortunately, we have to reckon with the thorns.

"He who would climb a tree must grasp its branches — not the blossoms," said Thackeray. Which means that we must pull ourselves up over the rough places, and not expect simply to coast downhill all the time.

We get mostly what we go after—if we go after it hard enough. About the only thing that has ever come into our lives without effort is trouble; and much of that can be traced to a desire to take hold of the blossoms instead of grasping the branches.

Thorns serve a purpose. They teach us that even in plucking roses, one must go about it with care and skill and practical knowledge—or get stuck.—*Bindery Talk.*

Pistol Team Holds Four World Records

THE Delaware and Hudson Railroad Police Pistol Team recently completed its most successful season to date, having participated in 29 matches, won 19 team trophies, 26 individual trophies, and 263 medals, and established four national marksmanship records. Because pistol shooters of no other country can compete with Americans, these records automatically become world marks. They are:

Four-man team, shooting over National Match Course (10 shots slow fire, 1 minute per shot, at 50 yards; 10 shots timed fire, 20 seconds per string of five, at 25 yards; and 10 shots, rapid fire, 10 seconds per string of five, at 25 yards) with .38 caliber revolvers, scored 1122 out of 1200. The record broken was the team's own 1116, shot the preceding year at Camp Ritchie, Md.

Five-man team, shooting over 25-yard Police Course (same as National Match Course except that slow fire is at 25 yards instead of 50) with .38 caliber revolvers, shot 1426 out of 1500. Record was formerly held by Los Angeles City Police who shot 1408 June 27, 1936.

Four-man team, shooting over 25-yard Police Course with .38 caliber revolvers, scored 1158 out of 1200. Previous record of 1142 had been held by Los Angeles Police since 1933.

Five-man team, firing National Rifle Association Course (same as National Match Course) with .45 caliber automatic pistols, shot 1312 out of 1500. Previous record, 1297, had been held by Los Angeles Police.

All four of these new records were established in the Eastern Small Bore and Revolver Championship Matches, fired at Camp Ritchie, Md., July 1 to 5, 1937.

Interest in pistol marksmanship among police, military, and civilian organizations has developed to the point where an individual or team, to win matches, must shoot almost perfect scores. Despite this fact, our team is rated best in the east and, with two possible exceptions, best in the country.

Members of the Team, Shown Here with Some of Their Trophies, Are: H. J. RUSS; C. E. HALL; COL. F. A. THIESSEN, Chief of Police and Team Manager; R. L. ADRIANCE; J. H. OVERBAUGH, Team Captain; and J. R. HERRON.

Magnetos Made at Sidney

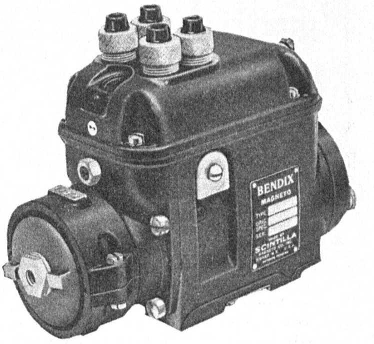
(Continued from page 185)

from the sets of parts laid out for them, progressing from compartment to compartment down the length of their individual benches. Each finished magneto is put on a running test for a number of hours to detect any flaws in materials or workmanship.

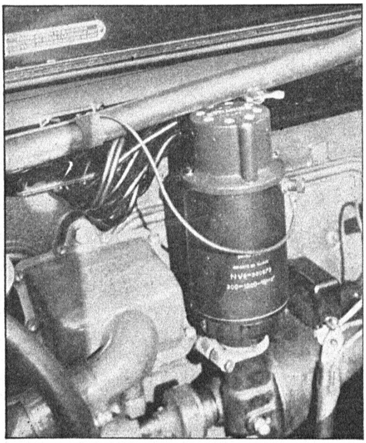
Most magneto parts are made in the Sidney plant, although some, like aluminum castings, ball bearings, magnets, etc., are made to Scintilla specifications by other manufacturers.

Production operations are very highly mechanized, the most modern machines available having been installed when the plant was enlarged in 1935. Girls wind coils with amazing rapidity on machines which appear to be not too distant cousins of the sewing machine. Rows of lathes, boring mills, shapers, planers, drill presses and special machine tools, all placed to give the maximum efficiency as well as lighting, stretch down through the 500-foot long "U"-shaped factory encircling the assembly department to which the parts are eventually to be taken.

Distributor blocks and other hard rubber parts are produced in one department which is very compact in view of the number of units produced. Sheets of rubber composition are cut up into pieces of proper dimensions to fill the wide variety of steel molds used to shape the different parts. Metal inserts which must form an integral part of the finished hard rubber part are secured in position in the mold, which is then placed in a specially designed machine. Carefully controlled heat reduces the rubber to a plastic state and pressure forces it into the various cavities of the mold. After a predetermined interval, the mold is removed from the heat and pressure treating machine, it is disassembled, and the hard rubber part, still hot, but already set in shape, is removed. Surplus "fins" are cut away and the part is then subjected to a complicated finishing process.



Magneto for Four-Cylinder Engine



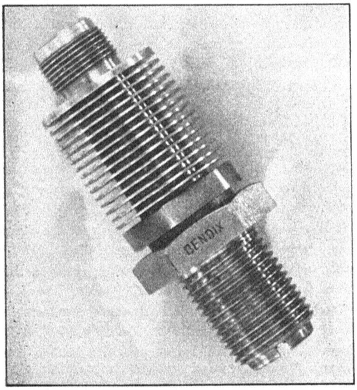
Magneto on Automobile Engine

Magnet production is another very interesting step in the manufacture of magnetos. The magnets are made of a special steel alloy, so hard that it cannot be machined, cast to a variety of shapes to accommodate various magneto designs. The use of this alloy, by the way, materially increases the output of the magneto, yet greatly reduces its weight. Before this alloy was developed, the magnet for one type of magneto weighed 3½ pounds. It has been replaced by one made of this alloy which, though much smaller and of greater magnetic strength, weighs only ½-pound. In experiments one of these magnets lifted a piece of steel 15 times its own weight. Magnetizing the casting is the final step in the production of the magnet. After it has been ground to a finish it is placed on a magnetizing stand consisting of an electro-magnet in the form of a "U"-shaped steel core, each leg of which is wound with approximately 50,000 turns of wire. When direct current is passed through the magnets the alloy casting is strongly magnetized.

Because of the absolute dependence of the airplane on its magnetos, and the risk of life and property involved in an engine failure while a plane is in flight thousands of feet in the air, every part is inspected when made and further inspections are made at each stage of the assembly operation, in addition to the final running test before shipment to the motor manufacturing plant. Magnetos supplied for government use are rigidly inspected at the Sidney plant by government inspectors, the Army Air Corps maintaining a resident inspector at the plant for this purpose.

A few years ago the Delco Aviation Corporation, of Dayton, Ohio, manufacturers of aircraft battery ignition equipment, was moved to Sidney and absorbed into the Scintilla organization. Bendix-Scintilla aircraft battery ignition is now the principal equipment of planes not equipped with magnetos. More recently the Hurley-Townsend Corporation, makers of aircraft spark plugs was acquired. Bendix aircraft spark plugs are rapidly assuming a leading place as equipment on modern planes.

Both the automobile and airplane spark plugs made at Sidney are radically different from those with which the average automobile owner is familiar. The newly designed and recently introduced automobile plug uses mica to replace porcelain which is apt to crack or break. The central electrode, of a special alloy, runs the entire length of the plug, assuring uniform conductivity and mechanical ruggedness. It is insulated from the ground electrode, or outside shell, by a "cigarette wrapper" of the finest sheet mica, every sheet of which is tested for insulating qualities before being wrapped around the electrode. The two-point ground electrode is made of a washer of special material which will not crystallize or get brittle in service, welded to the bottom of the plug shell, with two triangular-shaped "lips" pointing to the center, the spark gap being formed by the one angle of the triangle and the end of the central electrode. A patented innovation is a heavy copper bushing which forms a gas-tight seal inside the plug to prevent "compression leakage" through the plug. The body of the plug, where porcelain is ordinarily used, is built up by forcing more than 200 mica washers down over the central electrode, providing a virtually unbreakable plug of very long life. The two-point construction of the ground electrode offers the advantage of giving the spark the opportunity of jumping the gap which offers the least resistance to the electrical current. If one becomes slightly burned or fouled by carbon, the current sparks across the other gap.



Latest Type Airplane Spark Plug

Specially designed spark plugs for airplane use are also of novel appearance. The outside shell of the latest design is made of stainless steel which is practically corrosion proof. The plug is provided with horizontal fins for most of its length for cooling purposes, these fins being turned integral with the shell from a single piece of stainless alloy. They have four points instead of the one ordinarily found, or the two on Bendix automobile plugs, and the ignition wire is "plugged" into the top of the plug instead of making an outside contact at the top as in more familiar designs.

One of the latest developments by Scintilla is a magneto for one-cylinder outboard motor boat engines which produces such a hot spark that the big problem of the outboard motor—hard starting—is virtually eliminated.

The spark produced by the ignition systems once created so much noise in radio receiving sets on automobiles and airplanes that it seriously interfered with their reception while the engine was running. This difficulty was eliminated by enclosing the entire ignition system in metal which automatically grounds the radio waves set up both by low and high tension currents. All modern aircraft magnetos and many automobile and industrial units are now provided with radio "shields," and "shield harnesses" are used for enclosing the wiring throughout its entire length.

To the modern American mind, accustomed to take statistics on tremendous plant sizes and production in its stride, it seems strange indeed that this relatively small plant, in so small a community as Sidney, should hold such an important place in the field of aviation. But hold it it does, as evidenced by the fact that manufacturing facilities have been more than doubled since 1935 and its products enjoy an ever-widening market.

Railroading In the Movies

IT has been said that "the first movie actress was a locomotive." The reference is to the earliest bioscope days, when the first film producers loved to represent an express coming straight at the audience, with such terrifying realism—or so it seemed then—that nervous onlookers in the front rows of seats have been known hurriedly to vacate their places. In the course of the years the novelty has worn off, but the train has now definitely taken its place as part of the scenario-writer's stock-in-trade. The novelist is content to mention that his heroine left a certain terminus on a journey; the film-producer must show the train actually starting, with all the characteristic bustle accompanying its exit, and the sights and sounds of railway working. Whole films, like the immensely popular "Rome Express," have been built around a railway journey. What is more, the world is now full of well-informed critics, so that an increasing standard of accuracy is demanded in film productions which introduce railway scenes. This involves the film producers in the use of real railway plant, and in co-operation with the railways themselves to a considerable extent. There should be no reluctance on the part of the railways to provide such assistance, for although the thundering express may spell romance, give the idea of going places and doing things, and so provide excitement for the audience, it is at the same time a valuable publicity agent for the railways in representing the train as the normal method of getting from place to place.

So great a part does the train play in American film productions that the Fox Film Company has erected a building measuring 500 ft. x 150 ft. x 90 ft., and has equipped it permanently as a "train set." There is a standard gauge track extending the full length and beyond, with a full-size "property" locomotive and four cars, equipped with regulation Westinghouse brakes, and the train is moved to and fro with wire ropes by means of an electric winch, which is of considerable value in view of the constant repetitions taken of any one subject, before the ideal is secured. Exterior parts of the locomotive are moved by mechanical means. In order not to interfere with microphone recording, steam is led to the engine and the steam-heat connections of the coaches by a 6-inch hose, and then distributed where required by electric fans. Many transformations have to be effected to suit particular films. For the shooting of "Orient Express," the American coaches had to be changed to European standard designs, and for this purpose complete working drawings were obtained from a Belgian firm. Every distinguishing mark of the European stock, from heavy forgings down to internal fittings, was duplicated as nearly as possible, where practicable by spare equipment or "junk" bought from the local railway shops, and otherwise made in the film company's own workshops.

A more difficult task was that of perfecting "Bombay Mail." This required numerous real station scenes on the journey between Bombay and Calcutta, at various recognized stopping-points, which had to be accurately portrayed, or, as the account has it in an American contemporary from which we have drawn these details, "East Indian fans would squawk." Negotiations were therefore opened up between the film company and the Southern Pacific Railroad, where stations with roughly the right amount of trackage were settled on as the most suitable for the purpose, and agreement was reached as to the amount of camouflage each station would require in order to figure with reasonable accuracy as its Indian counterpart. A set of flat cars was leased by the Southern Pacific Railroad to the Fox Company with working drawings, and on these the latter built superstructures which, from the photographs available, gave a remarkably accurate representation of Indian coaches, with their sunblinds. In this connection, the studio research department has an extensive file of clippings on railway subjects taken from railway magazines, advertisements, travel articles, and so forth, which provide valuable information as to the details of railway equipment and working. A locomotive of suitable appearance was loaned from the S. P. R. R., had buffers substituted for the cowcatcher, was fitted with sunblinds to the cab, and otherwise transformed. The "shooting" was done during ordinary working hours, between the regular trains, and many railwaymen who might pass, by their looks, as Orientals, had the chance of their lives to figure for a brief space as screen stars in embryo. What is more, a few skilled railway people, needed to help in the working out of the picture from the railway operating point of view as "technical directors," derived some comfortable salaries for their services, and the opportunity of consorting with the real stars to boot. Such is the association between the railway and the movies, which is constantly becoming closer and more important.—*The Railway Gazette.*

Clicks from the Rails

A News-carrying Dog,

Shep, is the common interest on which the friendship of an M-K-T conductor and a farmer living near Noxie, Kan., is based. Every day when Train No. 26 speeds by, the conductor tosses a morning paper from the train and the dog, after barking in greeting, carries the paper to the farmhouse. Incidentally, the farmer expressed his appreciation for the daily paper by sending the conductor a dressed chicken for Thanksgiving and later acknowledged a Christmas card by mailing his railroading friend a large picture of Shep.

✣

Racing Trains —

and beating them on their own tracks is the unique accomplishment of a thoroughbred horse owned by a woman living near Reading, Pa. Amazed railroaders recently saw the six-year-old horse race into the local yards a dozen lengths ahead of a freight train. "That's nothing," said the owner, "when Tony (the horse) broke out of the barn he ran ahead of an express train for half a mile. He must have picked up the freight train later."

✣

A Runaway Locomotive

was caught by its engineer after a several mile chase in a taxi. The engine, which had been standing at the Gray (France) station, suddenly started and was fast disappearing from view at 25 miles per hour when the engineer commandeered a taxi and started in pursuit. When the engine slowed down on an upgrade, the engineer swung from the taxi to the engine and stopped the runaway.

✣

Fruit Served on Diners

costs American railroads $750,000 annually. This sum is spent for 15,000 barrels of apples, 1,625,000 oranges, and 500,000 grapefruit.

Never Again

will a certain young lady stop a limited train to mail a letter. Leaving Carmi, Ill., with the "Dixie Limited," Engineer O. F. Clabourne noticed an automobile skid to a stop by the platform. Further on he saw the same car racing along the highway and the driver, a young lady, giving him stop signals. Thinking she wanted to warn him of danger, he stopped, only to have her ask him, "Can I mail this letter on your train, please?" The incident was officially covered by the terse—but suggestive—words, "Immediate steps taken to prevent recurrence."

✣

Loudspeakers on Trains

of the Jersey Central not only make it possible for the waiter to announce dinner without walking through the cars, but bring to passengers musical selections and the comments of a "guide" installed in the baggage car. The guide reads data on historical places, manufacturing plants, and other interesting points passed by the sightseeing trains on which the system is being used.

✣

Wide Experience

in railroading, not to mention a record for the largest number of different jobs held, is claimed by G. J. Hardwick, ticket accountant for the "Katy" at Waco, Texas. Starting with the road 24 years ago, he has held 13 different jobs in 6 different departments.

✣

Hurt Feelings

were the principal result of a recent wreck of the "Grand Island Express" a toy train operating in a Buffalo amusement park. A doctor spent two hours treating the injured after the "flyer" jumped the track on a sharp curve while running downgrade.

Flower-growing Railroaders

from points scattered all over the United States, Mexico, and Canada, displayed exhibits in the second annual show of the Pennsylvania Railroad Garden Club, in Philadelphia. The show is strictly limited to flowers grown by railroad men. Commenting on the event, the Associated Press remarks: "Train schedules are compelling things, but you can't tell—when the engineer of the limited opens the throttle wide, maybe he's in a hurry to get home and water his petunias."

✣

Boyish Curiosity

recently caused the wrecking of a Baltimore and Ohio flyer. The principals, aged 8 and 11 years, fastened a steel tie plate to the rails "to see what would happen." Traveling 60 miles an hour, the train was derailed, though it continued for a quarter of a mile before the engine and tender plunged down a 20-foot embankment, the 10 cars being derailed. Fortunately no one was seriously injured.

✣

Waving Her Baby

frantically, an unidentified woman flagged a Southern Railway freight train near Bulls Gap, Tenn., the engineer bringing his charge to a grinding stop in time to avoid hitting a huge boulder which had rolled down on the track just around a curve which he was approaching. Like many another heroine, the woman walked away during the excitement without making herself known.

✣

The Beaver Tail

observation end of the "Coronation Express" of the London Northeastern, fastest train in the British Empire, is molded from "Perspex," a transparent plastic from which the panels were curved to desired shapes by the Safety Glass Company.

If

IF thou has yesterday thy duty done,
And thereby cleared firm footing for today,
Whatever clouds may dark tomorrow's sun,
Thou shalt not miss thy solitary way.

—GOETHE.